Icy Ordeal

Automated Flight Services Station employees battle extreme winter ice blast in Midwest.

2

Critical Radar

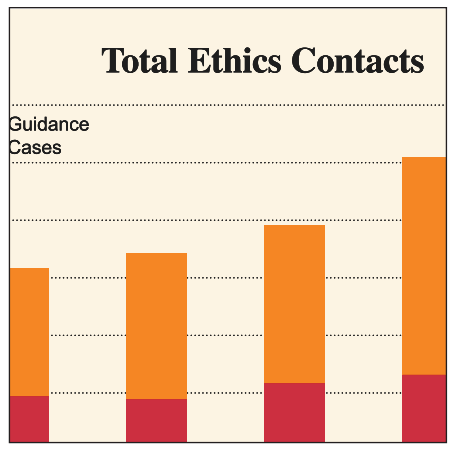
Expertise and field experience drive MS2 toward quick delivery of new U.S. Army radar system.

3

Flood Prediction

New hydrological forecast system will help Romania battle frequent flooding.

6



Ethics Roundup

Ethics activity in 2006 is summarized, showing types of requests and cases.

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Today

LOCKHEED MARTIN

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February 2007

Volume 13, No. 2

Ready To Roll

Soldiers credit Lockheed Martin trainers with preparing them for convoy attacks

Sgt. First Class Matthew Brown had never set foot on Iraqi soil. He had never felt the shockwave of an IED blast. He had never been shot at while riding in a convoy.

Yet by the time he was deployed to Iraq in October 2005, he had seen it all before.

Brown and his fellow soldiers in the 6th Battalion 27th Field Artillery Regiment out of Fort Sill, Okla., arrived in Iraq with a clear picture of the challenges they would face, thanks to Virtual Combat Convoy Trainers (VCCTs) developed by Lockheed Martin Simulation, Training and Support.

"The comment from the platoon was that it was probably the best training we went through," says Brown, whose platoon came under attack 32 times during its one-year deployment. "It gives you a visual picture of what you're going to be driving through. We realized from using the VCCT that we would have to do something to deal with the confusion and the highly emotional state that everybody is in when adrenaline is pumping during an attack."

Since the VCCTs went into service in August 2004, more than 50,000 troops have trained on the equipment through January 2007.

There's little doubt among soldiers about the value of that training, says Lt. Col. Scott Pulford, product manager for ground combat tactical trainers with the U.S. Army Program Executive Office for Simulation, Training & Instrumentation (PEO STRI).

See Simulation p. 2

Khaled Odeh, systems engineer at Lockheed Martin Simulation, Training and Support, operates the Virtual Combat Convoy Trainer in Orlando, Fla. Odeh has been a member of the VCCT program since its inception.

Al Herzl was instrumental in the design of the Mars Global Surveyor and later served as the program manager at Lockheed Martin Space Systems. "MGS operated six years beyond its original mission, which I didn't expect in my wildest dreams," Herzl says. "We pushed the spacecraft hard and took a lot of risks, but we knew it couldn't go on forever."

Red Sunset

After remarkably long and productive mission, Mars Global Surveyor goes silent

Al Herzl has lived and breathed Mars Global Surveyor since 1994. He was instrumental in the spacecraft's design, and later as MGS program manager at Lockheed Martin Space Systems he pored over the near-constant communication with the prolific orbiter.

Then, on Nov. 2 of last year, 3,645 days after it first flickered to life, MGS fell silent.

"MGS operated six years beyond its original mission, which I didn't expect in my wildest dreams," Herzl says. "We pushed the spacecraft hard and took a lot of risks, but we knew it couldn't go on forever."

Still, long-time MGS team members say it has been difficult getting used to the idea that the spacecraft will probably not be heard from again.

"We had a lot of confidence and hope at first that [MGS] would be able to recover," notes Kenny Starnes, who led the Space Systems' team that wrote MGS's software prior to launch and served as the spacecraft team chief for many

See Mars p. 4

Embracing Differences

Diversity Maturity Model shows improvements in inclusiveness

Lockheed Martin has fully embraced diversity in the workplace, according to the third annual assessment results announced last month.

The Corporation scored an overall 3.2 on the 5-point scale of the Diversity Maturity Model (DMM), a rating developed to measure an organization's progress on creating an inclusive environment.

This year's score reflects a significant improvement over last year's rating of 2.3 and exceeds this year's goal of 2.6. The rating marks the first time the Corporation has crossed into the third tier of the scale, continuing to move toward the fourth and fifth levels of "integrated" and "institutionalized."

While a score of 2 classifies a company as "enlightened," reaching the 3 level means a company has "embraced" diversity, fully integrating its diversity mission into its overall business strategy.

See DMM p. 5

Simulation

Continued from p. 1

"VCCT training is a peak demand item among deploying units," Pulford notes. "When we're able to give commanders 10 convoy experiences before they drive for the first time in theater, their chance of success is greatly enhanced. And they recognize that fact."

The positive feedback from the field validates the urgency the Army felt in March 2004 when it called on industry to develop a convoy training system. IEDs, short for improvised explosive devices, had become — and remain — one of the enemy's preferred weapons, and convoys were especially vulnerable.

Just four months from the time the request went out, the Lockheed Martin Simulation, Training & Support team delivered the first units to Army bases.

"We have Army subject matter experts essentially living with us, and they are part of every step we make," said Andre Elias, Simulation, Training and Support's director of Virtual Training Solutions, as the first VCCTs were delivered.

Pulford notes that the Army's initial decision to purchase the training capability rather than the actual equipment helped move the program along quickly. PEO STRI has since bought the equipment and is operating it, although it continues to maintain a tight relationship with industry teams to incorporate enhancements.

The Lockheed Martin VCCT is a suite of four Humvees outfitted with armor and weapons that replicate the vehicle configurations crews actually used in the field. The simulators are housed in 53-foot trailers that can be easily moved from one location to another to provide training for deploying troops.

In the foreground, Jeff Hunt, systems engineer at Lockheed Martin Simulation, Training and Support, shows U.S. Army Lt. Gen. David Petraeus features of the Virtual Combat Convoy Trainer.

The system uses detailed databases that give students a stunningly realistic depiction of what they will encounter in Iraq. In some cases, Pulford reports, crews have trained on the actual routes they traveled with their convoys.

While IED attacks get most of the public attention and are an important part of the training experience, other aspects of the training scenarios are equally important, Pulford says. Situations such as equipment breakdowns, blocked routes, vehicle identification, and determining how far a convoy stretches from end to end are all vital for commanders to understand.

"We put the convoy commanders and everybody in the vehicle through a variety of scenarios," Pulford says. "We want commanders to be as confident as they can possibly be in every situation. Their response to each situation should be a muscle reflex, not opening up a book."

One of the most important lessons that Sgt. Brown learned by using the trainers was that communication is the critical element. "We were constantly on the road," he said, traveling in the dangerous territory north of Baghdad to distant cities such as Tikrit, Mosul and Tal Afar.

The VCCT training underscored to Brown and others in his platoon that the confusion during an attack could slow the response and create a danger of more casualties. To minimize confusion, his unit separated critical communications from routine reporting in a way that allowed commanders to hear everything but filtered out non-essential communications to individual vehicles.

"Our goal was to enable commanders to communicate with each vehicle without creating undue stress and confusion among all the vehicles in the convoy," Brown says. "When you get all this chatter going on and everybody yelling at once, it can get really confusing and slow down your response. You don't know who's saying what to who. The training showed us we needed to address that problem, and we did."

Brown's only criticism of the VCCT training was that he didn't get enough of it. He says he would have liked to have two training periods, one before his unit worked out some of its operating procedures and one afterward to see if they worked.

Feedback from soldiers is one of the ways that the Army is continuing to modify and strengthen the VCCT training program, says Lt. Col. Pulford.

"Insurgents will try a new technique next week or next month and we must respond to those changes," he notes. "The enhancements incorporated since initial deployment have kept the systems current with the present operating environment."

One enhancement PEO STRI has initiated is the integration of the VCCT with the Aviation Combined Arms Tactical Trainer flight simulator. Pulford points out that all convoys now have some level of air support, and coordination with that support is critical to maximizing its value.

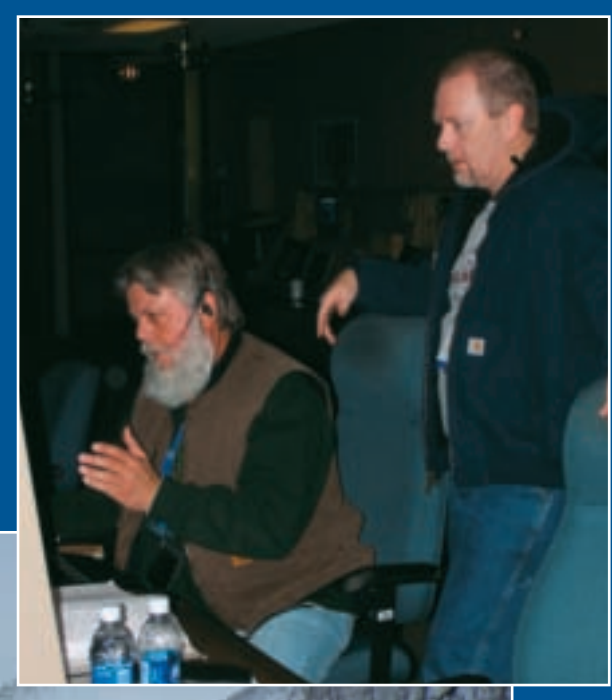
The ongoing communication and collaboration with industry is nothing less than Pulford would have expected, given the exceptionally quick response that Simulation, Training and Support demonstrated in developing the VCCT.

"The credit on this really belongs to industry," he says. ■

INFO For more information, contact communicator Warren Wright at (407) 306-4447.

Employees Battle Powerful Ice Storm

Employees at the Automated Flight Services Station (AFSS) in McAlester, Okla., displayed courage and determination to serve the customer in the face of a severe winter ice storm that coated Oklahoma in January. An unprecedented arctic blast, the storm downed limbs, sagged telephone poles and snapped electrical lines, knocking out power for tens of thousands for weeks. As the ice accumulated, the AFSS facility lost communication capability, but continued to provide information using personal cell phones and with assistance from the AFSS in Fort Worth, Texas. The AFSS network is part of Lockheed Martin Information Technology's contract with the Federal Aviation Administration. The 58 AFSS locations are responsible for collecting, processing and delivering aeronautical and meteorological information to promote safe and expeditious flight. In the photos, air traffic control specialists Garry Lynn and Ron Mercer, top right, and Danny Ferraro, top left, are among those who kept the lines of communication open. "I am extremely proud to be associated with this professional group of employees," said Operations Manager Christopher Taylor. "It is my privilege to call them the finest bunch of people that I have ever worked with."



From left, Lee Flake, director of the Lockheed Martin MS2 EQ-36 Counterfire Target Acquisition Radar program, and Mark Starr, vice president of multi-mission radars at MS2, are committed to delivering the first systems in 30 months.

This artist's concept shows the EQ-36 Counterfire Target Acquisition Radar, which will provide U.S. Army soldiers with the capability to detect, classify, track and determine the location of enemy indirect fire such as mortars, artillery and rockets.

Protective Instinct

Expertise and field experience drive MS2 toward quick delivery of critical new U.S. Army radar system

Every day of the 14 months that U.S. Army Colonel Lee Flake spent in Iraq added to the field artillery officer's conviction that something needed to be done to improve the Army's capability to detect incoming mortar and rocket fire — and soon.

Existing radar systems were limited to 90-degree search sectors, which allowed the enemy to observe the direction of the antenna and attack from the rear. One of the systems was effective at detecting short-range mortars but much less effective in tracking rockets from farther out. The other system had the opposite limitations.

Plus, the rigorous demands of around-the-clock operation and the harsh Iraq environment were causing both systems to show their age. The 30-year-old radars were prone to breakdowns, and spare parts were hard to get.

Today, Flake is engaged in an effort that will help remedy those shortcomings. He retired from the Army in 2005 and is now director of the Lockheed Martin MS2 EQ-36 Counterfire Target Acquisition Radar program.

The Army awarded the contract to MS2 Radar Systems in September 2006, and last month the program got the green light to provide an initial five EQ-36 systems following the resolution of a protest. Eventually, MS2 could provide 197 systems to the Army worth nearly $2 billion.

"I saw the problems that our soldiers were having with the old systems," says Flake, whose last assignment in Iraq was chief of staff of the First Armored Division. "We're determined that we're not going to just hit the ground running on this program; we're going to rocket off the starting line. We need to get these radar systems in the hands of our units in the field."

The EQ-36 (technically, the Enhanced AN/TPQ-36) will provide a 360-degree search capability and give soldiers the ability to detect, classify, track and determine the location of enemy indirect fire such as mortars, artillery and rockets. Moreover, they will be more reliable, more mobile and have greater range.

"We're determined that we're not going to just hit the ground running on this program; we're going to rocket off the starting line. We need to get these radar systems in the hands of our units in the field."

— U.S. Army Colonel Lee Flake (Ret.)

MS2 in Syracuse, N.Y., is the lead systems integrator on the program, but other Lockheed Martin sites also have key roles. MS2 in Moorestown, N.J., is providing the transmit/receive modules and antenna, and Lockheed Martin Simulation, Training and Support in Orlando, Fla., will lead the development and production of the EQ-36 training system and curriculum that will be embedded in each unit. In addition, Lockheed Martin Missiles and Fire Control contributed significant expertise to the program.

Other key teammates include Syracuse Research Corp., which is responsible for the digital signal processor; Tobyhanna Army Depot, responsible for sustainment maintenance support; and Burtek, Inc., which will provide the operations shelter and stationary platform.

The role of Syracuse Research has been particularly significant, says Mark Starr, vice president of multi-mission radars at MS2. Before bringing the company onboard for the EQ-36 program, MS2 worked with Syracuse Research on the Multi-Mission Radar Advanced Technology Objective (MMR-ATO), which resulted in the development of technology that will be leveraged for the EQ-36.

"I can't stress enough the advantage we gained from the MMR-ATO program," Starr says. "The technology was tested at the Yuma Proving Ground, which proved our concepts indeed worked and demonstrated beyond any doubt that our design was achievable, low risk and cost competitive."

The risk reduction achieved by the MMR-ATO program was critical because of the complexity of the tracking task that the EQ-36 will perform.

"Tracking an in-flight projectile is difficult because it's a very small object moving very quickly, and it's not just detecting the object, but also determining if it's something you want to track," Starr explains.

When it determines which objects are in fact projectiles, the system uses algorithms to determine where actual projectiles are going to land — and it does it while the system's antenna is rotating.

Perhaps the greatest challenge facing the EQ-36 team, however, is schedule. It now has just 30 months in which to deliver the first systems. Although the schedule is tight, both Starr and Flake say the team recognizes that it is by necessity, and that everyone is committed to getting the life-saving radar into the field.

"Under Lee's leadership, everyone is thinking like a soldier and recognizing the customer's critical need for these radars," Starr says. "We're all just damn proud to be part of the team." ■

EQ-36 Program Director Lee Flake shared both humorous and inspirational messages before an overflow crowd of employees at the MS2 facility in Syracuse, N.Y., last month. Employees were invited to the rally to celebrate the kickoff of the program, which will build an initial five Counterfire Target Acquisition Radars and lead to a hoped-for production contract of almost 200. Flake, a retired Army Colonel, spent 14 months in Iraq as a field artillery officer and led the team that was responsible for the aging radars that the EQ-36 will replace.

INFO For more information about Lockheed Martin MS2's EQ-36 radar, contact Kurt Norman at **kurt.d.norman@lmco.com**, (315) 456-1538.

Super Science

Here are a few highlights from the long list of science findings produced from the data obtained by Mars Global Surveyor during its eight years on orbit.

- The spacecraft's camera found gullies cut into many slopes that have few, if any, impact craters. This indicates the gullies are geologically young. Scientists interpret this as evidence of action by liquid water, essentially in modern times.
- The mineral-mapping infrared spectrometer found concentrations of a mineral that often forms under wet conditions, fine-grained hematite. This discovery led to selection of a hematite-rich region as the landing site for NASA's Mars Exploration Rover Opportunity.
- Laser altimeter measurements have produced an unprecedented global topographic map of Mars. The instrument revealed a multitude of highly eroded or buried craters too subtle for previous observation, and mapped canyons within the polar ice caps.
- The magnetometer found localized remnant magnetic fields, indicating that Mars once had a global magnetic field like Earth's, shielding the surface from deadly cosmic rays.
- The camera found a fan-shaped area of interweaving, curved ridges interpreted as evidence of an ancient river delta resulting from persistent flow of water over an extended period in the planet's ancient past.
- A long life allowed Global Surveyor to track changes through repeated annual cycles. For three Martian summers in a row, deposits of carbon-dioxide ice near Mars' South Pole shrunk from the previous year's size, suggesting a climate change in progress.

Power Systems Engineer Susan Mumaw and Kenny Starnes, who served as the Mars Global Surveyor team chief for many years, are shown here in the mission support area.

Mars

Continued from p. 1

years. "When it got to the point where it should have worked through all of its fault responses but we still didn't have contact, that's when everyone started getting a kind of sinking feeling."

At the same time, Starnes adds, everyone who worked on MGS also should be "satisfied in knowing that it was a great mission." Indeed, MGS generated an incredible amount of science and established a tremendous number of space mission milestones.

The spacecraft's camera returned more than 240,000 images which, along with data from the other five science instruments, led to many important discoveries about the Earth's closest planetary neighbor. *(See accompanying list of science highlights.)*

"Mars Global Surveyor has surpassed all expectations," noted Michael Meyer, NASA's lead scientist for Mars exploration, last November. "It has already been the most productive science mission to Mars, and it will yield more discoveries as the treasury of observations it has made continues to be analyzed for years to come."

Most recently, MGS-produced images resulted in one of the most exciting findings about Mars to date. A comparison of photographs of the same area taken in 2001 and 2005 showed two surface gullies had appeared, suggesting that water had come to the surface sometime during the four intervening years.

The findings heightened intrigue about the potential for microbial life on Mars, since liquid water (as opposed to the water ice and vapor also believed to exist on Mars), is considered necessary for life.

Similar comparisons of photos taken several years apart have revealed 20 fresh meteor impact craters ranging from 7 feet to 486 feet in diameter. These findings have important implications for determining the ages of features on the surface of Mars.

The before-and-after comparisons and the information gained from them are reinforcing the value that MGS has delivered by remaining in orbit so long beyond its design life. The spacecraft originally was designed for a two-year mapping mission, but it was in its fourth extended mission when it went silent.

Adding to the remarkable nature of the mission were its many firsts. It was the first spacecraft to aerobrake through the Martian atmosphere; the first with equipment that enabled it to stare simultaneously at the sun (solar arrays), the Earth (telecommunications), and another planet (nadir instruments pointed at Mars); and the first spacecraft in deep space that was established as an orbiting resource at Mars to downlink data from future Mars rovers back to Earth.

The design challenges created by these features were significant, recalls Herzl.

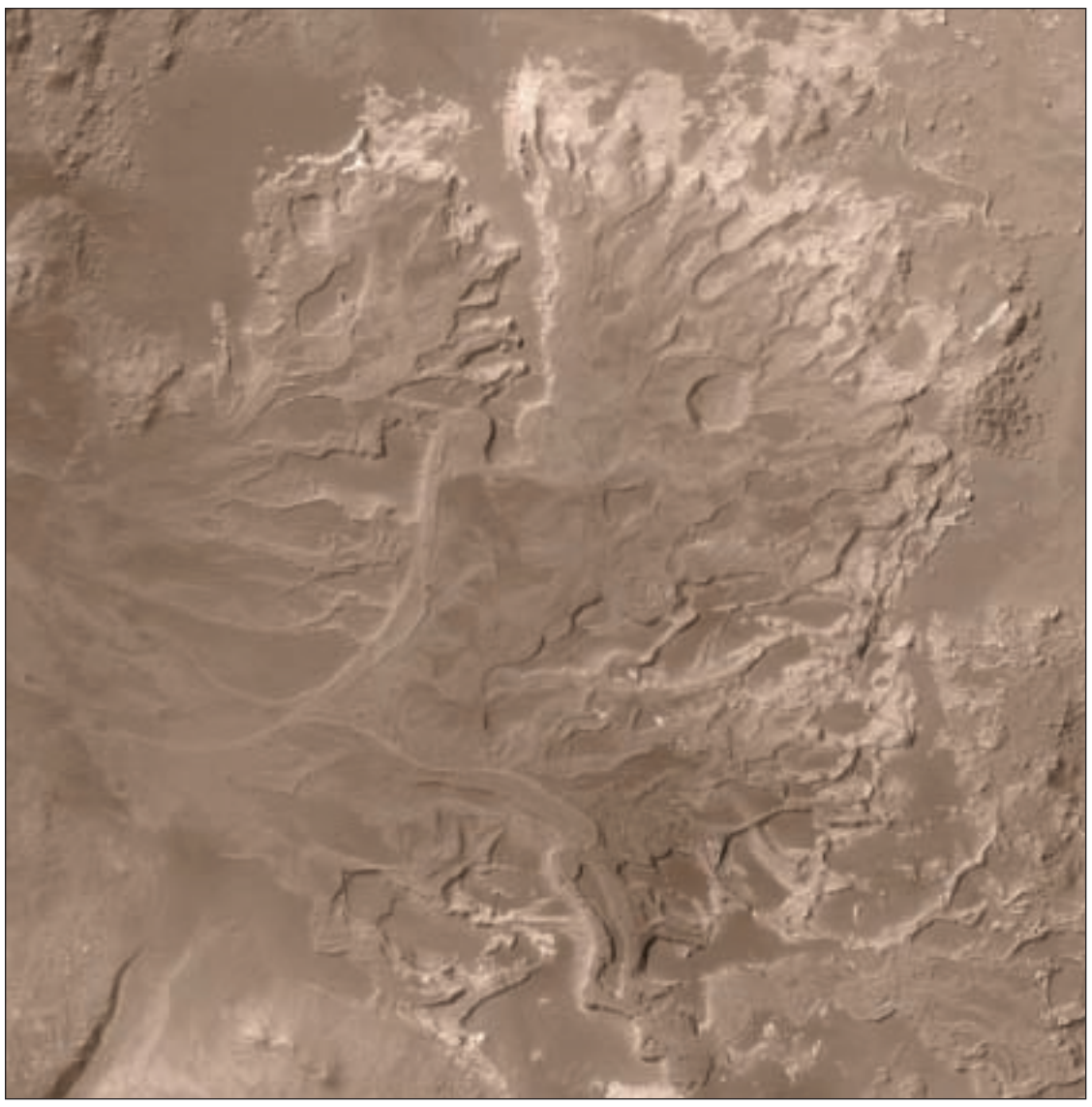
"We had people who were willing to take reasonable risks, people who knew where the tipping point was and didn't mind creeping up on it without going over. They loved hard challenges," Herzl says.

As many challenges as the design presented, the difficulties did not let up after launch. If anything, they increased. A problem with the deployment of one of the solar panels continued to impact the mission for years afterward, requiring unanticipated maneuvers and operational tactics.

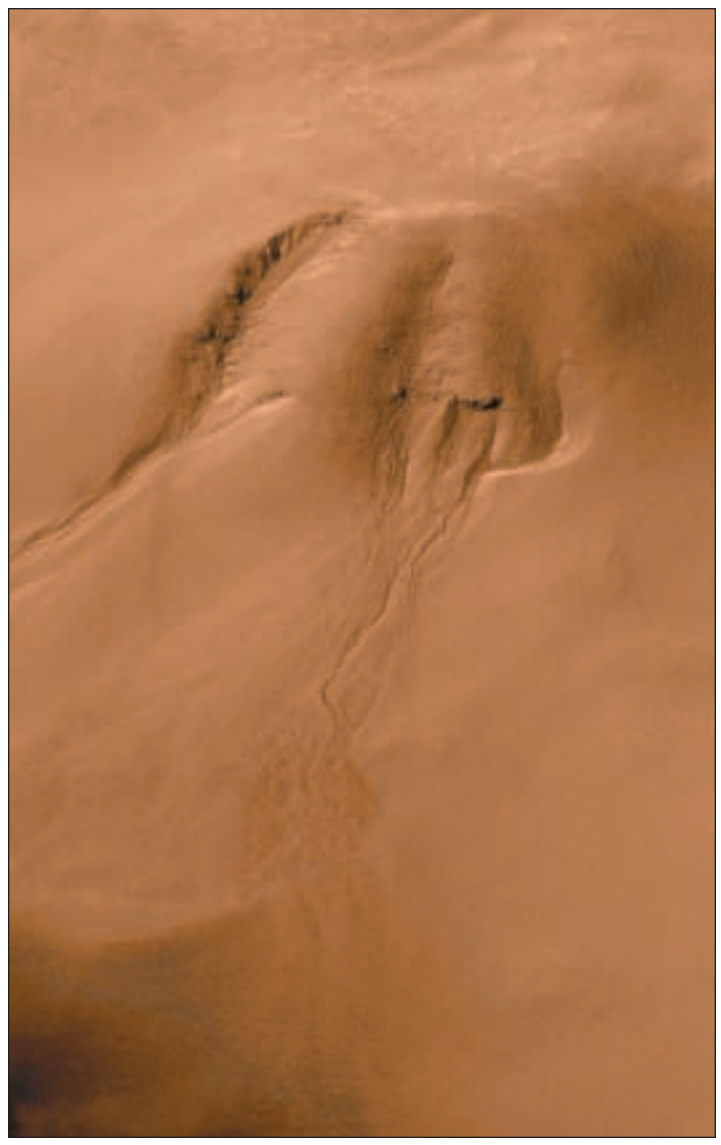
Because the "shoulder" of the panel was weakened, the planned aerobraking maneuver had to be modified to place less stress on the joint. That meant the spacecraft had to move into its intended orbit at a slower rate.

In typical fashion, the mission team found a way to turn what at first appeared to be a problem into an advantage. It used a six-month wait between aerobraking maneuvers to turn on the spacecraft's magnetometer and begin gathering scientific data.

The result was one of the mission's most intriguing findings: magnetic field remnants in the crustal rocks



Studies of this image taken by the Mars Global Surveyor indicate that some valleys on Mars experienced the same type of ongoing flow over long periods of time as rivers do on Earth. The image is also important in that it revealed that some sedimentary rocks on Mars were deposited in a liquid environment, probably water, and that the feature here was actually a delta – a deposit made when a river or stream enters a body of water.



This view from the Mars Global Surveyor shows channels that are interpreted to have been formed by groundwater seepage, surface runoff and debris flow. These gullies indicate that liquid water may be present within the Martian subsurface today.

The Mars Global Surveyor is loaded onto a C-17 in 1996.

An artist's concept shows the Mars Global Surveyor in space. The Mars Global Surveyor operated in Mars orbit longer than any other spacecraft to date.

of Mars indicating that Mars may have once been more like Earth than scientists had previously imagined.

"We were working frantically during that time to make sure we had done everything necessary for the new science phase sequences," Starnes remembers. "One thing that really energized us was when we got back an image of the moon Phobos."

In the end, Starnes says, all of the long hours and countless anxieties of controlling a highly complex spacecraft from 160 million miles away were definitely worth it.

"When it's all said and done here in 2007, I think we can all look back with a great sense of satisfaction and accomplishment," he says. "MGS has accomplished all of its original goals plus many more." ■

INFO For more information about the long and distinguished Mars Global Surveyor mission, visit the official MGS Web site at **http://mars.jpl.nasa.gov/mgs/.**

DMM

Continued from p. 1

It also means a company has completed strategic plans, created provisions for accountability and added an external focus to its efforts toward inclusiveness.

"I am impressed and gratified to see such a marked improvement," said Sonya Stewart, vice president of Diversity and Equal Opportunity Programs for the Corporation. "I have no doubt that leaders will continue to make improvements to ensure that Lockheed Martin provides employees with a welcoming and supportive environment that celebrates our diversity as an asset."

The Lockheed Martin Executive Diversity Council developed the DMM concept four years ago. An employee survey providing direct feedback from the people who know most about the work environment receives the greatest amount of weight in the DMM, accounting for about 60 percent of the rating. A business unit self-assessment accounts for about 40 percent, along with a small amount of objective statistical data about the workforce, such as hiring and attrition rates.

In the first rating year of 2004, the Corporation scored a rating of 2.0, improving to a 2.3 in 2005. The growth in maturity to a 3.2 in the 2006 score illustrates how businesses have responded to employee and assessment feedback in the previous years, committing time and resources to ensuring a more diverse and inclusive environment.

Each year, the Executive Diversity Council examines the results of the assessment and the process to ensure the most accurate assessment possible. One change in 2006 was the addition of site visits and peer reviewers from each business area. The peer review team members represented a variety of backgrounds and experiences. The team visited the sites to expand the assessment process beyond a paper review that was done in previous years.

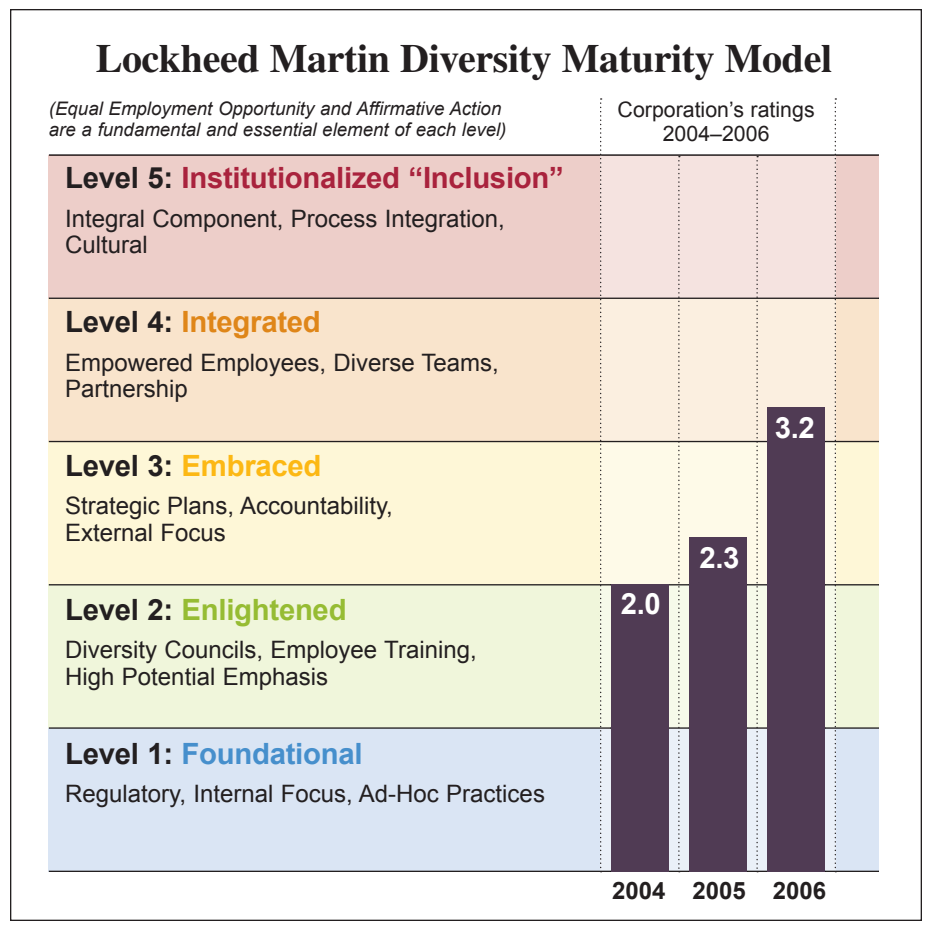
"We will continue to focus on deeper integration of the Corporation's diversity mission, particularly in the day-to-day experience where Lockheed Martin's employees are most affected," says Sonya Stewart, vice president of Diversity and Equal Opportunity Programs for the Corporation.

The peer review team visited 12 major locations and teleconferenced with units in Canada and the U.K. between September and November to work with business units to help clarify any issues involving the self-assessment. The team reviewed more than 400 pieces of evidence per company, examining documents that demonstrated the company's efforts throughout the year in promoting diversity. The overall rating is derived from individual scores in four categories, including Leadership and Commitment, Organization Climate and Culture, Workforce Strategy and Development, and Customer Relationship and Management.

"This measurement process has been extremely valuable in helping us to see – in an objective and quantifiable way – the strengths of our culture as well as the areas in need of improvement," Chairman, President and CEO Bob Stevens said in an all-employee memo announcing the results. "Clearly, we are creating a culture that not only appreciates diversity, but thrives on it. We recognize that a diverse and inclusive work environment attracts and retains the very best people, and those people create value for our business."

As the Corporation continues to mature on its way to the ultimate tier of "institutionalized" diversity, one of the overall goals for 2007 is to continue to work with all levels of management to adopt the principles of diversity.

"We will continue to focus on deeper integration of the Corporation's diversity mission, particularly in the day-to-day experience where Lockheed Martin's employees are most affected. This means heightened awareness with first-line and second-line levels of management," Stewart said, "because those are the leaders who control the environment and the day-to-day experience for Lockheed Martin's employees." ■



This year's score of 3.2 reflects a significant improvement over last year's rating of 2.3.

Recurrent flooding events within Romania's 11 river basins during the past several years have been responsible for dozens of fatalities and $2.2 billion (U.S.) in economic damages. DESWAT vastly upgrades the Eastern European country's current technical and institutional capacities for flood forecasting to help reduce the impact of these severe hydrological events. Above, a Romanian looks at a destroyed dam; at right, a house collapses under the strain of severe water damage.

Rainy Day Friend

Flood prediction system helps Romania battle destructive waters

Flooding is costly the world over, but few places experience its ravages more acutely than Romania. A country crisscrossed by towering mountains and deep river valleys, Romania suffered nearly $2.5 billion in flood damage in 2005 and early 2006.

Although little can be done to alter terrain and weather, help has arrived to enable the Romanian government to predict when flooding will occur and to move people and property out of harm's way more quickly.

That help is in the form of a hydrological forecast system called DESWAT, short for destructive waters, developed and integrated by Lockheed Martin MS2 in Syracuse, N.Y. Working in partnership with the Romanian Ministry of Environment and Water Management, MS2 conducted a successful operational readiness demonstration of DESWAT in November.

DESWAT will put Romania "on the forefront of deploying a system that will give us the technical capability to forecast severe hydrological events and decrease our country's reaction time," said Lucia Ana Varga, the country's Secretary of State for Water Management.

Officials expect the system to save lives and reduce flood-related damage. Here's how:

Nationwide, 625 stations automatically transmit sensor data on conditions such as precipitation, air temperature, water level and water velocity. Several quality monitoring stations also collect and transmit data.

DESWAT then uses advanced data processing and analysis technology to run large-scale forecast models that can rapidly identify and interpret hydrological phenomena that could develop into a flood.

Experts at the National Hydrological Services office use the DESWAT analyses to decide when to distribute flood alerts to the public and to authorities responsible for flood defense, so that people can be evacuated and valuable property can be moved or secured.

For MS2, the DESWAT program is a prime example of how a close relationship with the customer and attention to his needs can have positive results for both the customer and the company. The MS2 Radar Systems line of business won a contract in 1999 to design and implement Romania's National Integrated Meteorological System, known as SIMIN.

It was during the development of SIMIN, which has been operational since 2003, that the MS2 team along with Romanian officials began to see the potential for a complementary system to address the nation's flooding problem.

"Developing SIMIN led to identifying a need for hydrological detection and monitoring that would add ground system monitors, integrated communications and additional modeling systems," says Tom Patello, MS2's DESWAT program manager.

"DESWAT uses radar data and precipitation estimates generated by SIMIN and adds in data from the ground sensors and geological information on terrain and soil content," he adds. "The system's algorithms are then able to provide the country's weather experts and decision makers with high-quality forecasts of where flooding is likely to occur and how severe it is likely to be."

As valuable as that information will be for Romania and its citizens, the nation's officials also are well aware of the value that DESWAT has for neighboring countries. Officials have said they intend to share the hydrological forecast data with Bulgaria, Hungary, Serbia, Ukraine and the Republic of Moldova.

"Flood waters don't know any national borders, so it's important for the countries of the region to cooperate and share information to get the maximum benefit from weather prediction systems," notes Bryce Ford, MS2's business development lead for integrated weather and environmental systems.

He adds that MS2 will pursue opportunities with other nations to develop systems similar to DESWAT, and the return on investment should continue to increase as the region develops a fully integrated network of forecasting systems.

"We have a large and growing suite of capabilities in this field," Ford says, "and we're able to draw from those capabilities to tailor solutions for each nation's needs and requirements."

"I've been very impressed with the Romanians' level of knowledge and ability to see the potential in applying new technologies," says MS2's Patello. "Our experience has excited all of us about the prospects for developing similar systems for other nations in Europe and around the world." ■

INFO For more information about the Romanian DESWAT program and Lockheed Martin MS2's weather forecasting systems in general, contact Bryce Ford at **bryce.ford@lmco.com**, (315) 395-5872.

Cutting the ceremonial ribbon to mark the start of the DESWAT operation in Romania are, from left, Tom Patello, Lockheed Martin program manager for DESWAT; Steve Bruce, Lockheed Martin vice president of Business Development; Her Excellency Sulfina Barbu, Romanian Minister of Environment and Water Management; and Dr. Petre Stanciu, general director of the National Institute of Hydrology and Water Management in Romania.

Ethics Roundup

Summary of Ethics activity for 2006 shows most requests are for guidance

Each year, the Office of Ethics and Business Conduct tracks contacts to the office, noting significant trends from prior years. Contacts consist of allegations of wrongdoing (a case requiring an investigation) or a request for guidance.

For 2006, the Ethics office received approximately 5,000 contacts, consistent with the amount of activity in 2005. In 2006, 76 percent of the contacts were requests for guidance and 24 percent were allegations of wrongdoing, compared to 75 percent and 25 percent, respectively, in 2005.

Lockheed Martin's 3:1 ratio of requests for guidance to cases involving an allegation is slightly better than the average for the defense industry, which is 71 percent guidance and 29 percent cases, and significantly better than the ratios in some industries: energy (19 percent guidance, 81 percent cases), telecom (30 percent guidance, 70 percent cases), and pharmaceutical (50 percent guidance, 50 percent cases).

The majority of requests for guidance are in the area of gifts and business courtesies. "Employees continue to ask questions about the gift rules," said Maryanne Lavan, vice president, Ethics & Business Conduct. "It's much better to ask a question than to risk violating the complex and sometimes confusing regulations covering gifts and hospitality to our customers."

A key measurement of the Ethics office's responsiveness is the time it takes to close an ethics case. The average days to close an ethics case decreased from 26 days in 2005 to 25 days in 2006. "Timely resolution of ethics issues is our goal, without sacrificing the quality of the investigation," Lavan says. "Employees want their concerns addressed quickly."

Another measurement used by the Ethics office is the percentage of employees who report concerns anonymously. In 2006, the percentage of anonymous cases decreased to 17 percent, compared to 20 percent in 2005. "When an employee calls the Ethics office to report a concern and identifies himself or herself, it indicates a high level of trust within the system," Lavan says.

Lavan added that the Ethics office will continue to monitor ethics activity to identify trends and potential problem areas, and to focus awareness and communications on key issues.

The following are details of several representative cases from late 2006.

Case Issue: Gifts and Business Courtesies

Background

A manager reported to the Ethics office that several employees may have accepted a meal from a vendor that exceeded the gift limits established by company policy.

Issue

What are the rules for accepting meals from vendors?

Facts

- During an audit of a vendor's price proposal, the auditor noted that a dinner costing $1,500 was included in overhead expenses.
- The vendor provided a list of 11 attendees, which included 7 Lockheed Martin employees. The cost per person for the meal exceeded $130.
- Several of the employees in attendance claimed reimbursement for the dinner on their company expense report, even though the meal was paid for by the vendor.
- The dinner had been provided as part of a team visit to the vendor in connection with a supplier outreach project.
- The manager in charge of the site visit stated that usually the vendor and Lockheed Martin alternated in paying for meals for the group.
- Employees in attendance included several procurement personnel.

Applicable Policy

Hospitality provided to Lockheed Martin employees is addressed in Corporate Policy Statement CPS-008, *Gifts and Business Courtesies*, which prohibits lavish or extravagant business courtesies. Unsolicited meals and refreshments (of reasonable value) may be accepted on an occasional basis if the acceptance will foster goodwill and successful business relations and the courtesies do not reflect a pattern or the appearance of a pattern of frequent acceptance of courtesies from the same entities or persons. In addition, employees involved in the procurement process are further restricted from accepting gifts and business courtesies from vendors, except for advertising or promotional items of nominal value such as a pen, visor, cup or similar item.

"Employees continue to ask questions about the gift rules. It's much better to ask a question than to risk violating the complex and sometimes confusing regulations covering gifts and hospitality to our customers."

— Maryanne Lavan, vice president, Ethics & Business Conduct

Resolution

The employees who accepted the meal were counseled on the company's policy on business courtesies. The employees who were reimbursed for meals they did not pay for were counseled on proper completion of expense reports. Also, the employees personally reimbursed the vendor for the cost of the meal.

See Ethics p. 8

Award Recognizes Geospatial Contributions

Jeffrey K. Harris, left, Lockheed Martin's corporate vice president and managing director, Situational Awareness, was recently awarded the 2006 Lifetime Achievement Award from the United States Geospatial Intelligence Foundation (USGIF). The USGIF presents the award annually to an influential member of the geospatial intelligence community. Harris was recognized for his geospatial technology innovations, significant contributions to national geospatial policy and programs, and visionary thought leadership in shaping the future of geospatial capabilities. During his 31-year career, Harris is credited with pioneering the development of national security reconnaissance satellites and ground systems, commercial remote sensing and exploitation systems, and unmanned aerial vehicles. In the photo, Harris, left, receives the award from K. Stuart Shea, president of USGIF, center, and Steve Jacques, vice president of USGIF Operations.

Ethics

Continued from p. 7

Case Issue: Charging Practices

Background

An employee reported that a co-worker may be overstating hours worked.

Issue

Was the employee mischarging labor hours?

Facts

- Ingress and egress records indicated that the employee had a consistent pattern of arriving late, leaving at the regular time, yet charging a full-day of labor hours.
- For the 12 weeks reviewed, the employee overstated hours worked by an average of 10 hours per week.
- When interviewed, the employee could not explain the shortage of hours worked, stating "sometimes good people do dumb things."

Applicable Policy

The employee was in violation of the local business unit's labor charging policy and of Lockheed Martin's Code of Conduct, both of which require the accurate recording of labor charges.

Resolution

The employee was discharged from employment. Also, the company made restitution to the customer for the mischarged labor hours.

Case Issue: Security and Threatening Behavior

Background

An employee reported that a co-worker was acting strangely and had used a keystroke recording device on another employee's company-owned computer.

Issues

What constitutes inappropriate behavior in the workplace? Are keystroke recording devices allowed to be used on company computers?

Facts

- The reporting party indicated that the employee seemed to obsess about a co-worker and installed a keystroke monitoring device on the co-worker's computer. The computer in question was unclassified, but was located in a security-restricted area.
- Several co-workers described the employee's behavior as "stalking."
- Other co-workers suspected that the employee had been listening in on phone calls in the office.
- When interviewed, the employee admitted to installing the keystroke monitoring device, but had felt guilty about it and removed it after one day. The employee admitted to being jealous of two co-workers' personal relationship.
- The employee had been having personal issues relating to a failed relationship, and had several emotional outbursts at work.

Applicable Policy

The employee violated the business unit's security procedures by installing a prohibited computer (keystroke monitoring) device. Also, the employee was in violation of CPS-037 *Information and Computing Resources*, which prohibits use of computing resources in ways that are disruptive or abusive. Lastly, CPS-565 *Workplace Security – Maintaining a Safe and Respectful Workplace Free from Threats and Violence* prohibits stalking behavior, including the use of company resources "to harass, frighten, stalk, threaten, or harm another person."

Resolution

The employee was discharged.

Case Issue: Inappropriate Comments

Background

An employee reported that a supervisor had made a derogatory comment about women.

Issue

What constitutes inappropriate comments in the workplace?

Facts

- The supervisor admitted to making a joking comment about not hiring women because the applicants were not wearing short skirts.
- Two women to whom the comment was directed stated that they were not offended by the remark because they understood it was only a joke and not meant to be demeaning. They also stated that there had been very few female candidates applying for the job in question.
- The supervisor acknowledged that others who may have overheard the comment could have been offended.

Applicable Policy

Corporate Policy Statement CPS-564 *Harassment-Free Workplace* prohibits offensive comments in the workplace.

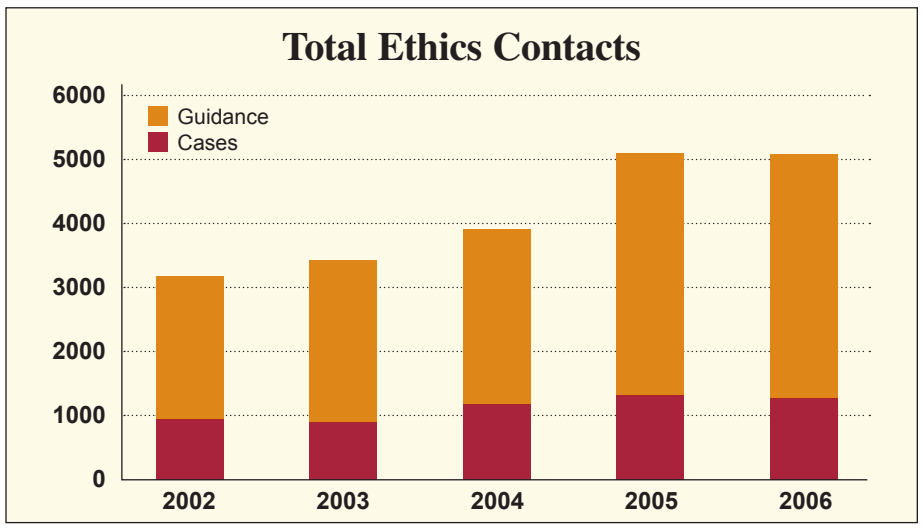
Resolution

The supervisor was counseled about the inappropriate comment. Also, the supervisor apologized to his team and promised to be more professional in his communications going forward.

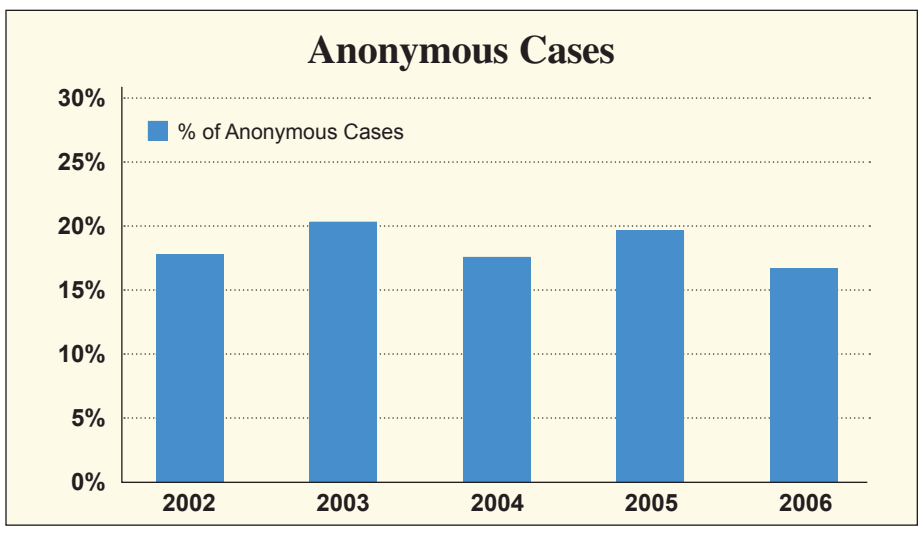
If you observe misconduct, report the issue to your management, Human Resources, or your local Ethics officer. You may also call the Corporate HelpLine at 800-LM-ETHICS.

"Timely resolution of ethics issues is our goal, without sacrificing the quality of the investigation. Employees want their concerns addressed quickly."

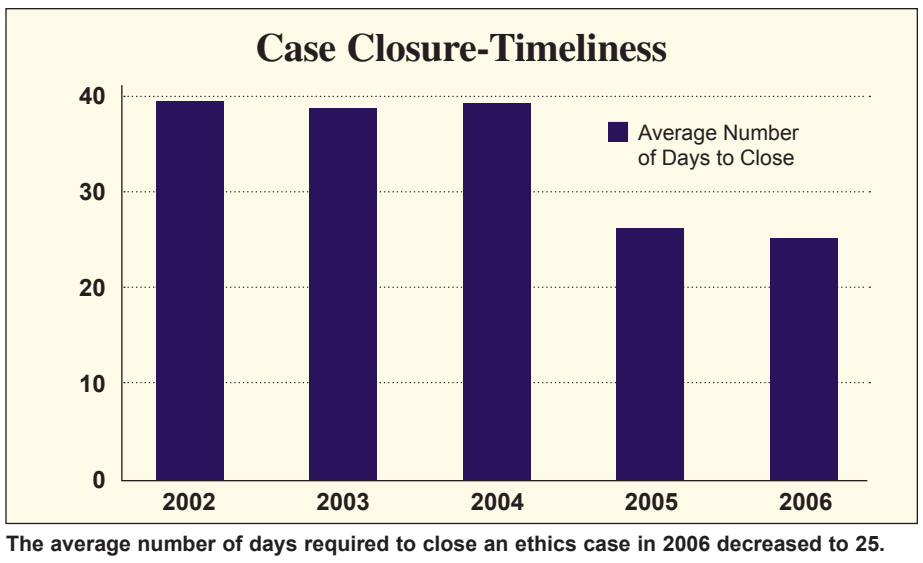
— Maryanne Lavan, vice president, Ethics & Business Conduct



Three out of four contacts to the Ethics Office in 2006 were requests for guidance.



The percentage of anonymous cases in 2006 decreased to 17 percent, indicating an increase of trust in the process.



The average number of days required to close an ethics case in 2006 decreased to 25.

Today

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